

**LISTING OF CLAIMS**

1           1. (Previously presented) A heterojunction bipolar transistor (HBT),  
2 comprising:  
3           a collector;  
4           an emitter; and  
5           a base located between the collector and the emitter, the base including a layer  
6 of gallium arsenide antimonide (GaAsSb) less than 49 nanometers (nm) thick and  
7 having a doping concentration greater than  $6 \times 10^{19}$  acceptors/cm<sup>3</sup>.

1           2. (Original) The HBT of claim 1, wherein the gallium arsenide antimonide of  
2 the base has an arsenic (As) fraction in a range from about 50% to about 51%.

1           3. (Original) The HBT of claim 1, wherein the gallium arsenide antimonide of  
2 the base has an arsenic (As) fraction in a range from about 50% to about 65%.

1           4. (Original) The HBT of claim 1, wherein the gallium arsenide antimonide of  
2 the base has an arsenic (As) fraction in a range from about 50% to about 60%.

1           5. (Original) The HBT of claim 1, wherein the gallium arsenide antimonide of  
2 the base has an arsenic (As) fraction in a range from about 54% to about 56%.

1           6. (Original) The HBT of claim 1, wherein the gallium arsenide antimonide of  
2 the base has an arsenic (As) fraction of approximately 55%.

1           7. (Original) The HBT of claim 1, wherein the base layer of GaAsSb is less  
2 than 20 nm thick.

1           8. (Original) The HBT of claim 1, wherein the base layer of GaAsSb is  
2 strained so that its lattice constant conforms to the lattice constant of the collector and  
3 the emitter.

1           9. (Original) The HBT of claim 1, wherein the base layer of GaAsSb is doped  
2 with beryllium (Be) at a doping concentration of between approximately  $6 \times 10^{19}$  and  
3  $4 \times 10^{20}$  acceptors/cm<sup>3</sup>.

1           10. (Original) The HBT of claim 1, wherein the base layer of GaAsSb is  
2 doped with carbon (C) at a doping concentration of between approximately  $6 \times 10^{19}$  and  
3  $4 \times 10^{20}$  acceptors/cm<sup>3</sup>.

1           11. (Original) The HBT of claim 7, wherein the base layer of GaAsSb is  
2 doped with carbon (C) at a doping concentration of between approximately  $6 \times 10^{19}$  and  
3  $4 \times 10^{20}$  acceptors/cm<sup>3</sup>.

1           12. (Previously presented) A method for making a heterojunction bipolar  
2 transistor (HBT), the method comprising the steps of:  
3           forming a collector;  
4           forming an emitter; and  
5           forming a base located between the collector and the emitter, the base  
6 including a layer of gallium arsenide antimonide (GaAsSb) less than 49 nanometers  
7 (nm) thick and having a doping concentration greater than  $6 \times 10^{19}$  acceptors/cm<sup>3</sup>.

1           13. (Original) The method of claim 12, wherein the base is formed of gallium  
2 arsenide antimonide having an arsenic (As) fraction in a range from about 50% to  
3 about 51%.

1           14. (Original) The method of claim 12, wherein the base is formed of gallium  
2 arsenide antimonide having an arsenic (As) fraction in a range from about 50% to  
3 about 65%.

1           15. (Original) The method of claim 12, wherein the base is formed gallium  
2 arsenide antimonide having an arsenic (As) fraction in a range from about 50% to  
3 about 60%.

1           16. (Original) The method of claim 12, wherein the base is formed of gallium  
2    arsenide antimonide having an arsenic (As) fraction in a range from about 54% to  
3    about 56%.

1           17. (Original) The method of claim 12, wherein the base is formed of gallium  
2    arsenide antimonide having an arsenic (As) fraction of approximately 55%.

1           18. (Original) The method of claim 12, wherein the base layer of GaAsSb is  
2    less than 20 nm thick.

1           19. (Original) The method of claim 12, further comprising the step of straining  
2    the base layer of GaAsSb so that its lattice constant conforms to the lattice constant of  
3    the collector and the emitter.

1           20. (Original) The method of claim 12, further comprising the step of doping  
2    the base layer of GaAsSb with beryllium (Be) at a doping concentration of between  
3    approximately  $6 \times 10^{19}$  and  $4 \times 10^{20}$  acceptors/cm<sup>3</sup>.

1           21. (Original) The method of claim 12, further comprising the step of doping  
2    the base layer of GaAsSb with carbon (C) at a doping concentration of between  
3    approximately  $6 \times 10^{19}$  and  $4 \times 10^{20}$  acceptors/cm<sup>3</sup>.

1           22. (Canceled)

1           23. (Canceled)

1           24. (Canceled)

1           25. (Canceled)